



# Kansas Wind Farm Update:

## *Merdian Way Wind Farm*



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**Kansas Wind & Renewable Energy Conference  
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# Horizon Wind Energy Overview

## Who We Are

Horizon Wind Energy develops, constructs, owns and operates wind farms throughout North America

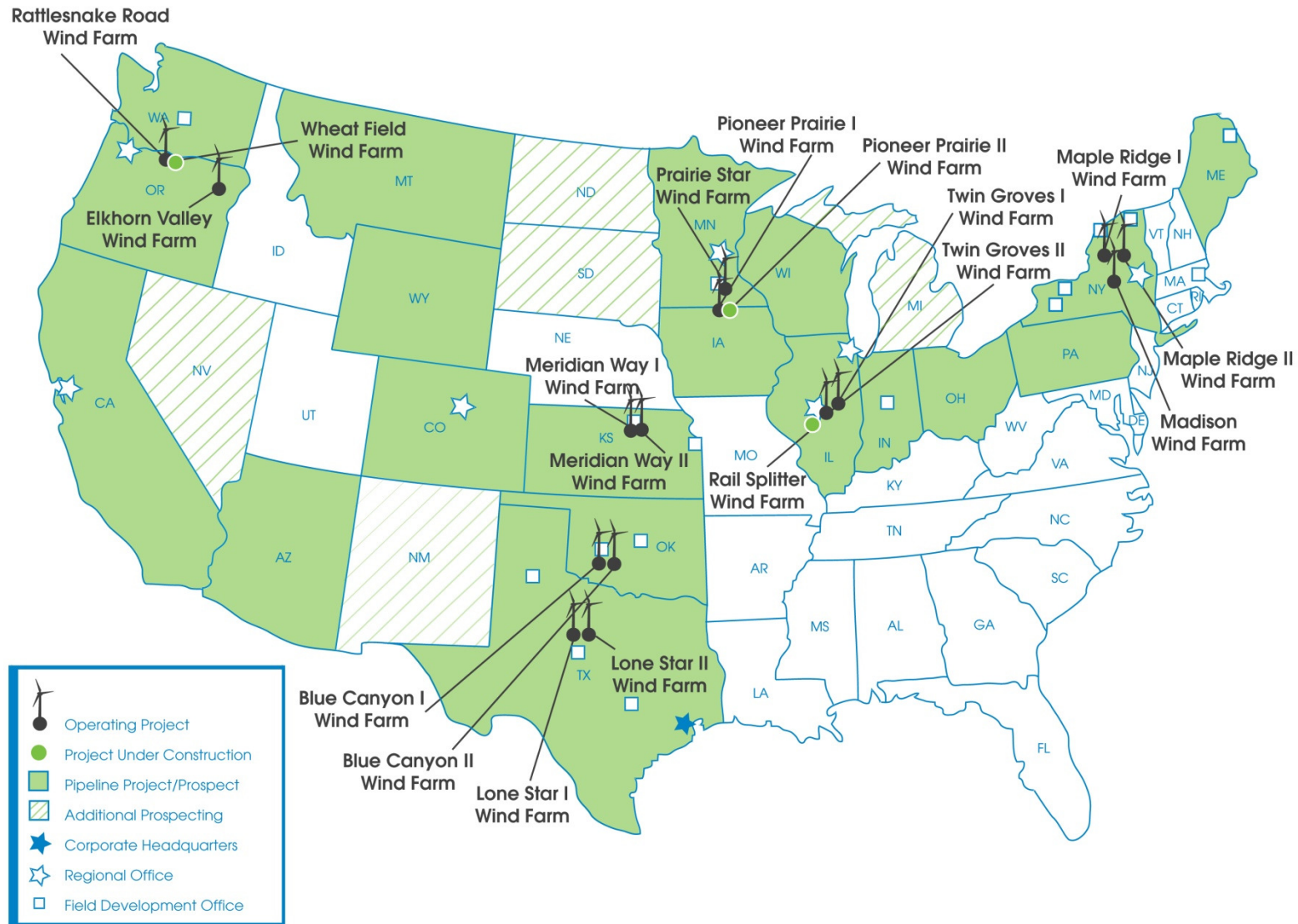
Currently part of EDP Renovaveis, a worldwide leading renewable energy company  
Originally Zilkha Renewable Energy, was renamed Horizon Wind Energy in 2005

Over 250 employees, headquartered in Houston or in regional offices in New York, Oregon, California, Colorado, Minnesota, Illinois and Kansas

Has developed over 2500 MW of wind farms and currently operates over 2000 MW  
Ranked #3 by wind energy installed capacity in 2007  
Ranked #2 by commissioned wind energy capacity during 2007



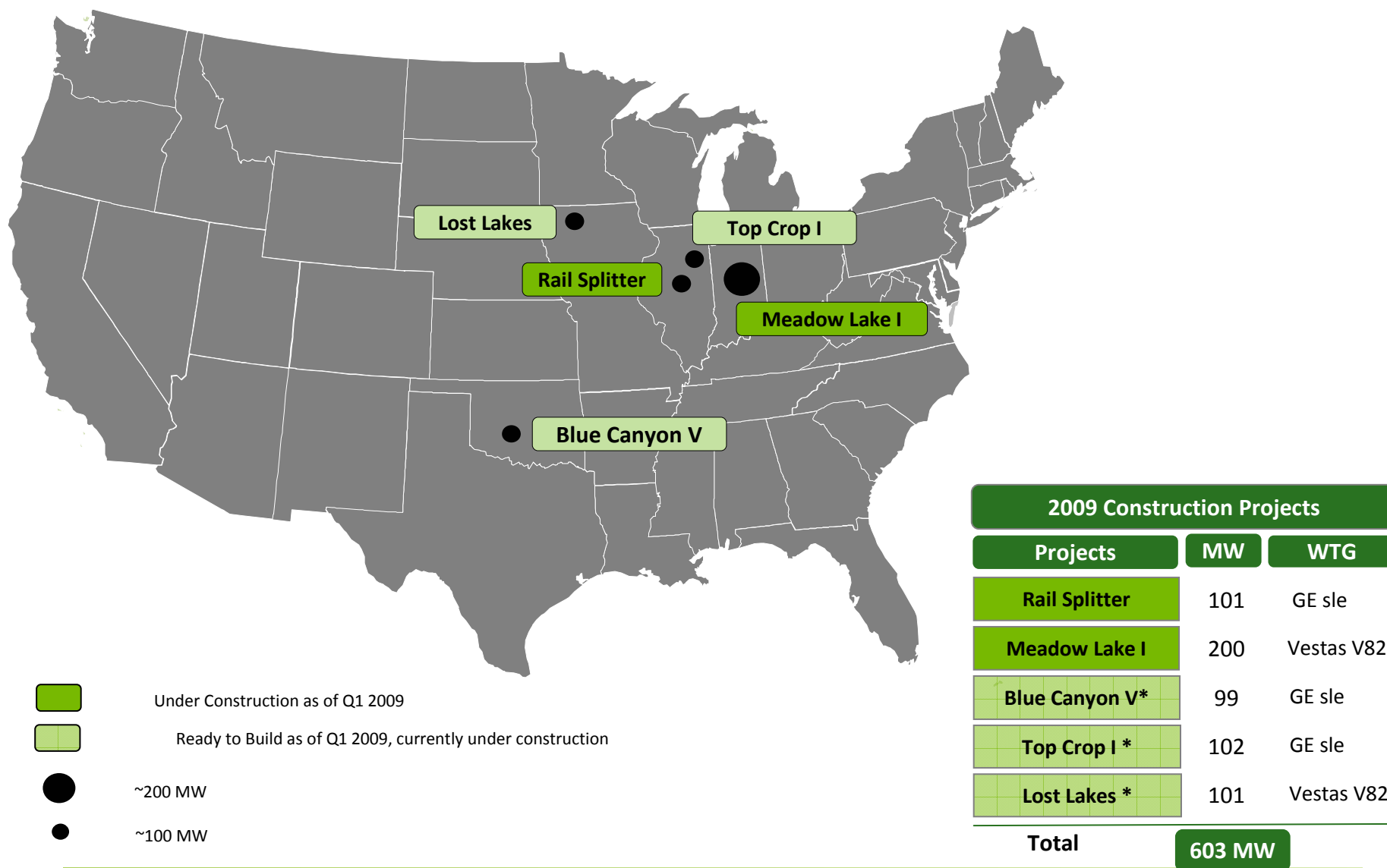
# Horizon Wind Energy Geographical Presence



**Horizon has 603 MW in construction, slated for completion in 2009**



**Once completed Horizon will have 2,860 MW operational in 9 States**



Blue Canyon V started construction in Apr 09. Top Crop I started in May 09. Lost Lakes started in June 09.

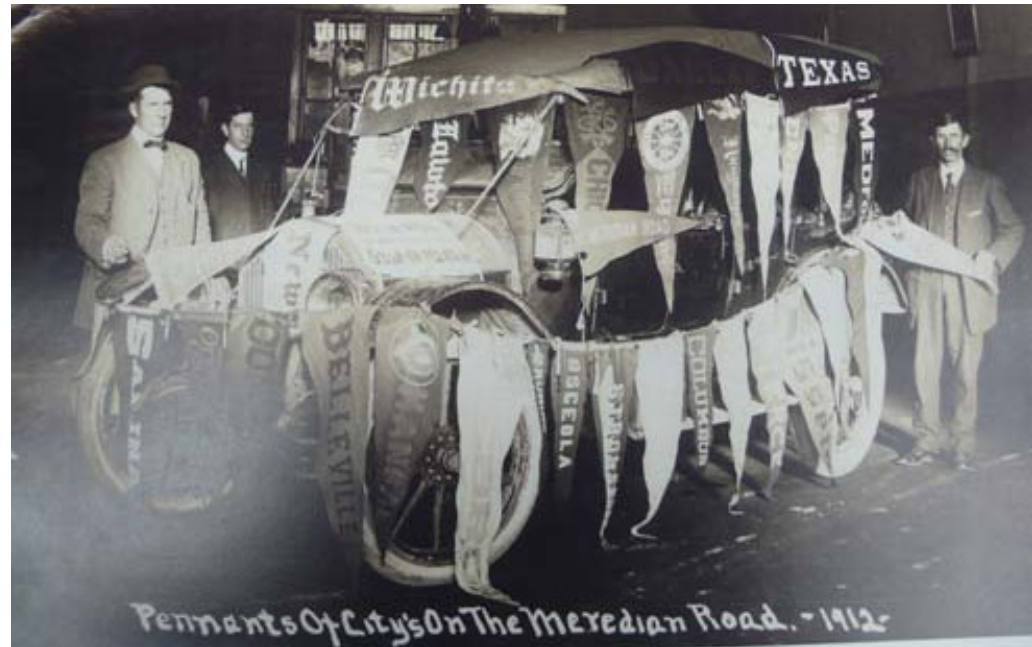


# Meridian Way Wind Farm – Cloud County Kansas



## Name Origin

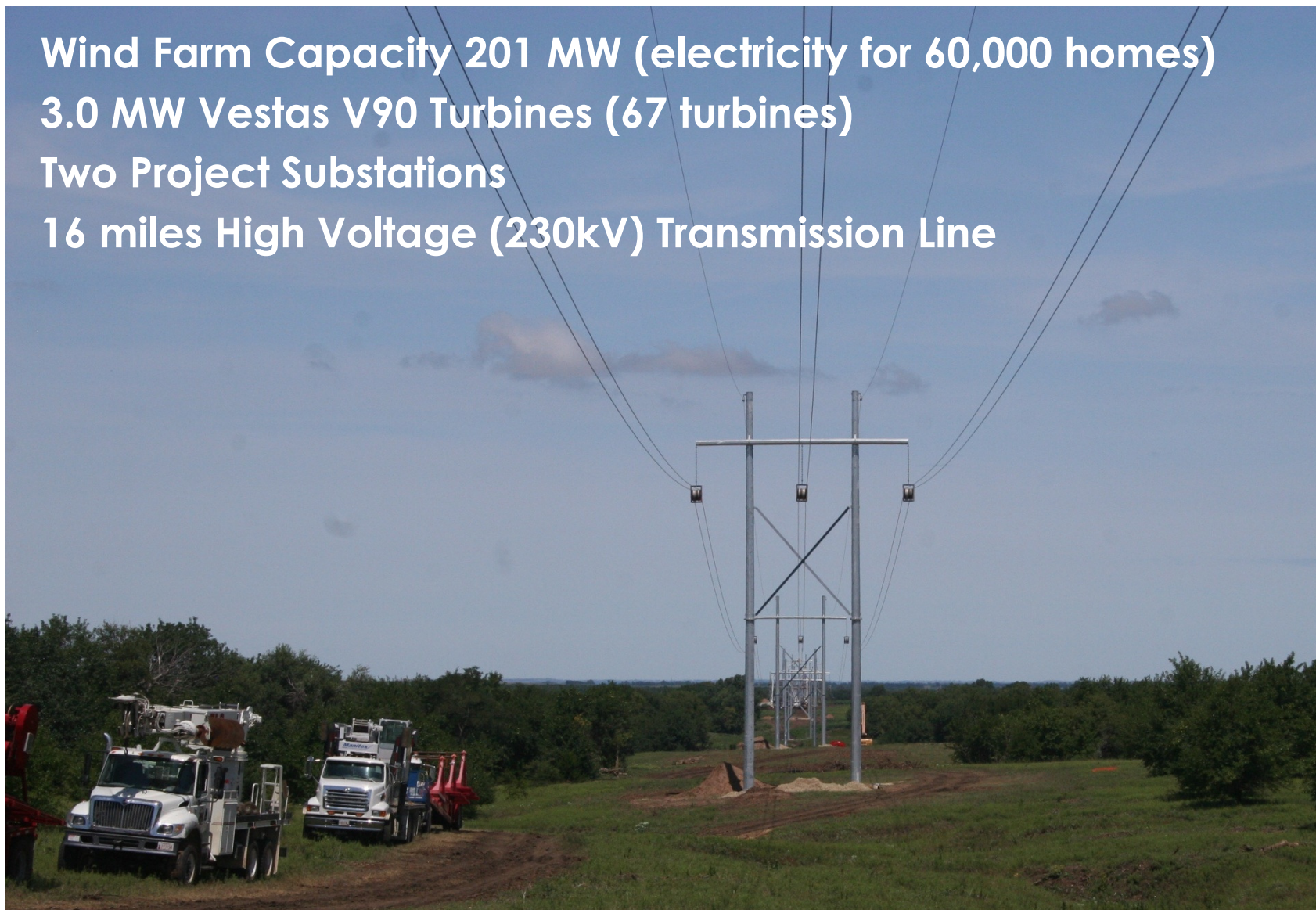
- Meridian Road Association
  - est. 1911 by group of “good roads” boosters
- Ran from Canada to Mexico
- 6<sup>th</sup> Prime Meridian
- Meridian: A point or period of highest development, greatest prosperity, or the like.





# Meridian Way Wind Farm Phase I and II

Wind Farm Capacity 201 MW (electricity for 60,000 homes)  
3.0 MW Vestas V90 Turbines (67 turbines)  
Two Project Substations  
16 miles High Voltage (230kV) Transmission Line





# How was Meridian Way Wind Farm Constructed?

## Civil Engineering...roads

- 16 miles County Road improvements
- 22 miles Turbine access roads

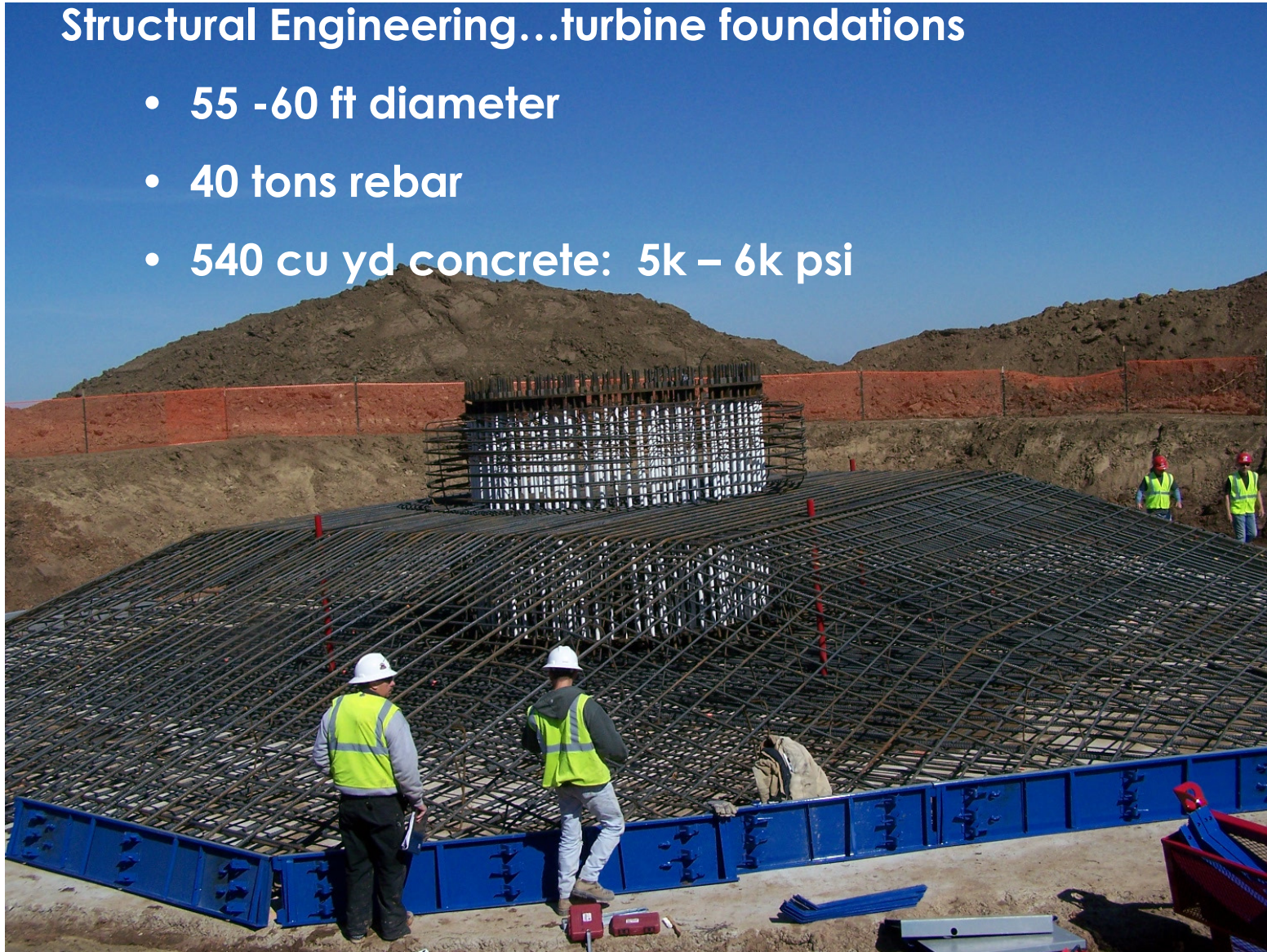




# How was Meridian Way Wind Farm Constructed?

## Structural Engineering...turbine foundations

- 55 -60 ft diameter
- 40 tons rebar
- 540 cu yd concrete: 5k – 6k psi





# How was Meridian Way Wind Farm Constructed?

## Electrical Engineering...collection

- 8 “circuits”
- 31 miles





# How was Meridian Way Wind Farm Constructed?

## Electrical Engineering...Project Substation

- 34.5 kV to 230 kV
- Transformer with oil: 175 tons





# How was Meridian Way Wind Farm Constructed?

## Electrical Engineering...transmission

- 16 miles of T-line
- 95 miles of conductor, fiber





# How was Meridian Way Wind Farm Constructed?

## Wind Turbine Generators (WTG)...installation

- 4 tower sections
  - Base section 14 ft dia, 60 tons
  - 144 bolts holding base

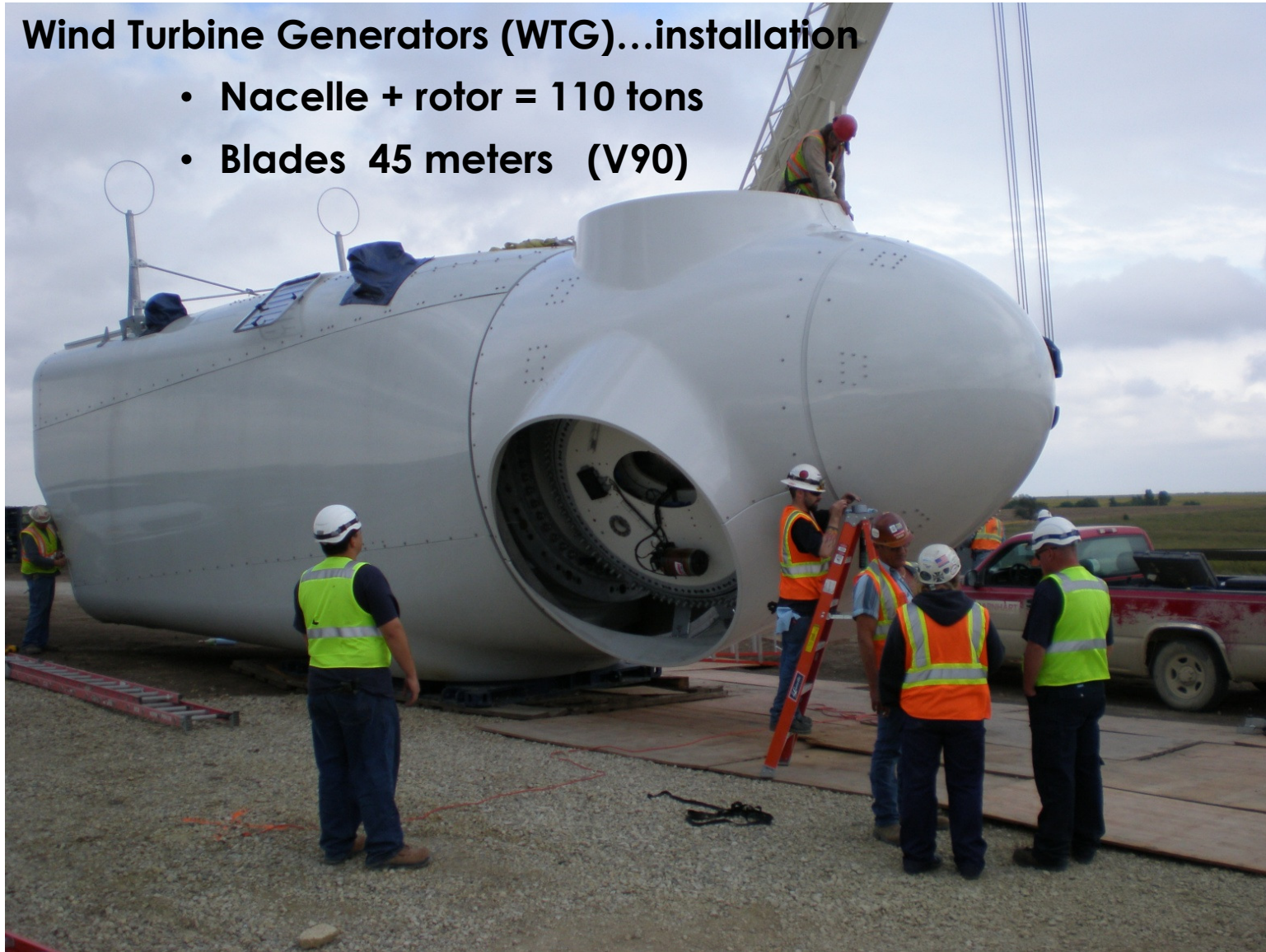




# How was Meridian Way Wind Farm Constructed?

## Wind Turbine Generators (WTG)...installation

- Nacelle + rotor = 110 tons
- Blades 45 meters (V90)



# Hydraulic Crane





# Crane technology





# Substation



# Substation



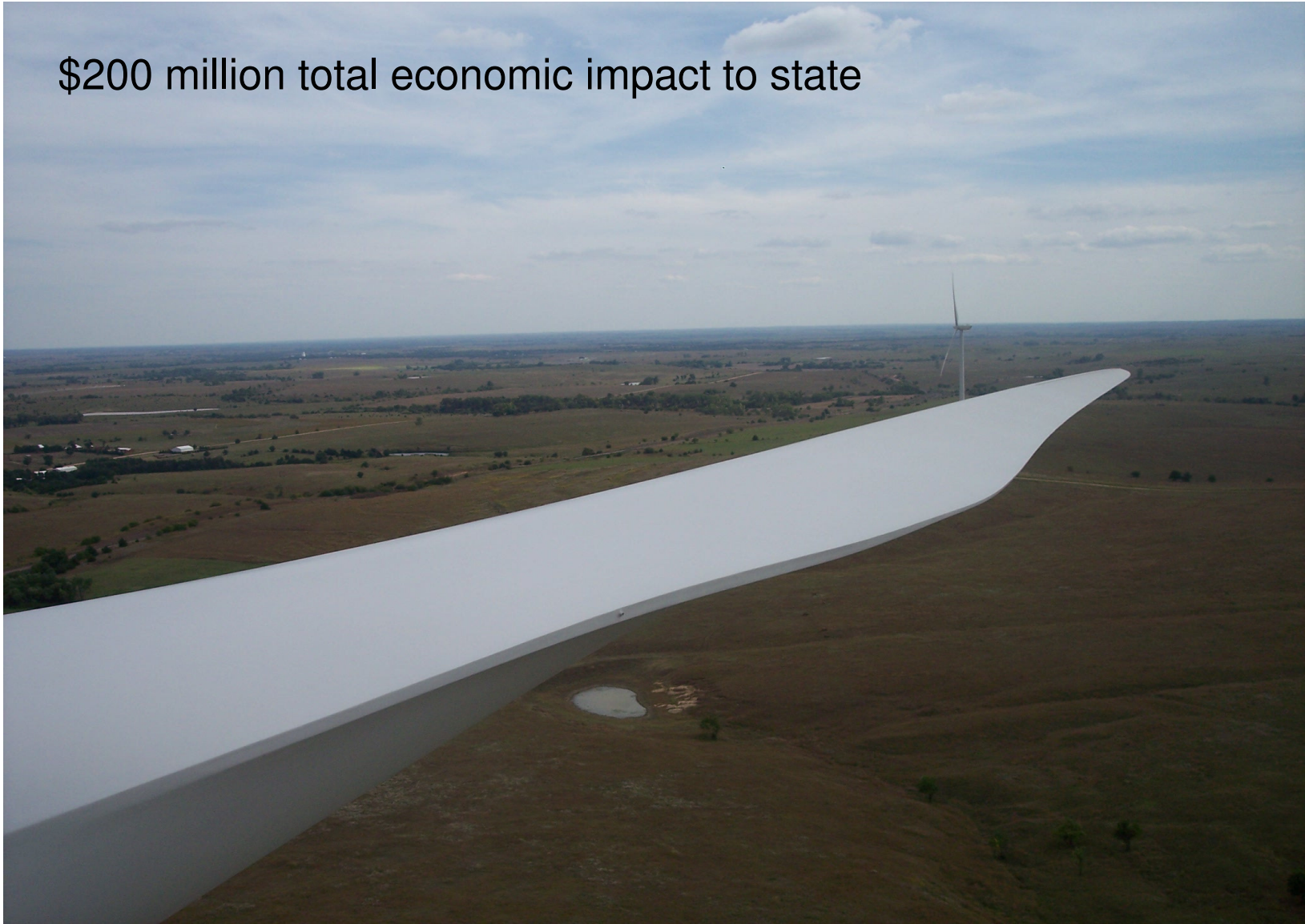


# Meridian Way Wind Farm



## Economic Benefits from Meridian Way

\$200 million total economic impact to state







# Jobs and Economic Impacts from the JEDI Model

1,000 MW of New Wind Power in Kansas



JEDI Model Version W1.09.03e

Wind energy's economic "ripple effect"

## Project Development & Onsite Labor Impacts

### Landowner Revenue:

- \$3 million/year

### Local Property Taxes:

- \$2.9 million/year

### Construction Phase:

- 514 new jobs
- \$35.8 million to local economies

### Operational Phase:

- 51 new jobs
- \$3 M/year to local economies

## Local Revenue, Turbine, & Supply Chain Impacts

### Construction Phase:

- 3,536 new jobs
- \$401.7 million to local economies

### Operational Phase:

- 81 new jobs
- \$12.8 million/year to local economies

## Induced Impacts

### Construction Phase:

- 1,277 new jobs
- \$127.1 million to local economies

### Operational Phase:

- 54 new jobs
- \$5.3 million/year to local economies

## Totals (construction + 20 years)

Total economic benefit: \$987 million

New local jobs during construction: 5,327

New local long-term jobs: 186

Construction Phase = 1-2 years

Operational Phase = 20+ years

# Kansas – Economic Impacts from 7158 MW of new wind development

## *Wind energy's economic “ripple effect”*

### Direct Impacts

#### **Payments to Landowners:**

- \$20.8 million/year

#### **Local Property Tax Revenue:**

- \$19 million/year

#### **Construction Phase:**

- 11,133 new construction jobs
- \$1.35B to local economies

#### **Operational Phase:**

- 1805 new long-term jobs
- \$152M/yr to local economies



### Indirect Impacts

#### **Construction Phase:**

- 5,000 new jobs
- \$424M to local economies

#### **Operational Phase:**

- 438 local jobs
- \$43 M/yr to local economies

### Induced Impacts

#### **Construction Phase:**

- 6,223 new jobs
- \$559 M to local economies

#### **Operational Phase:**

- 850 local jobs
- \$76 M/yr to local economies

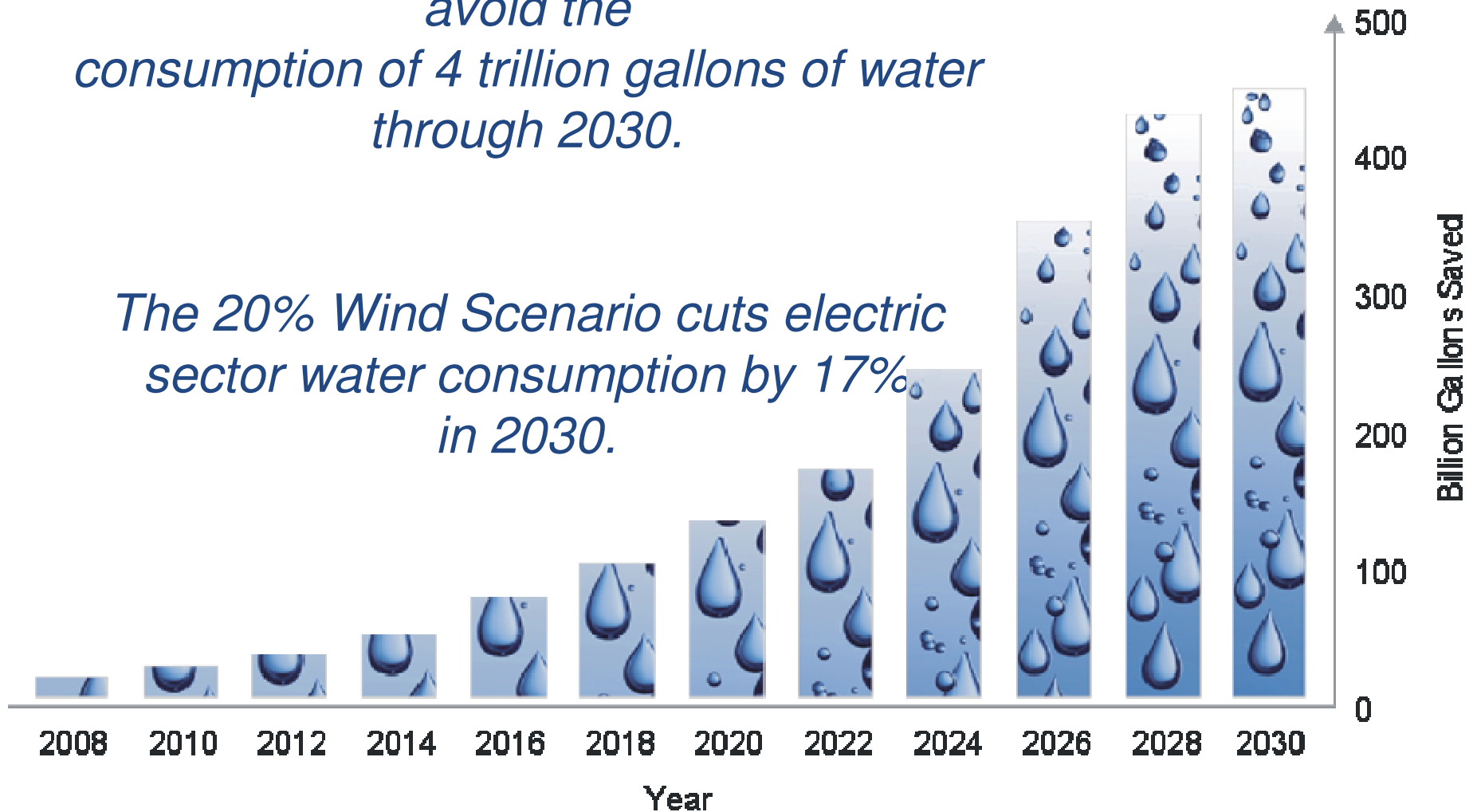
### Totals (construction + 20 yrs)

Total economic benefit to Kansas = \$7.8 billion  
New local jobs during construction = over 23,000  
New long-term jobs for Kansans = over 3,000

# Significant Water Use Savings

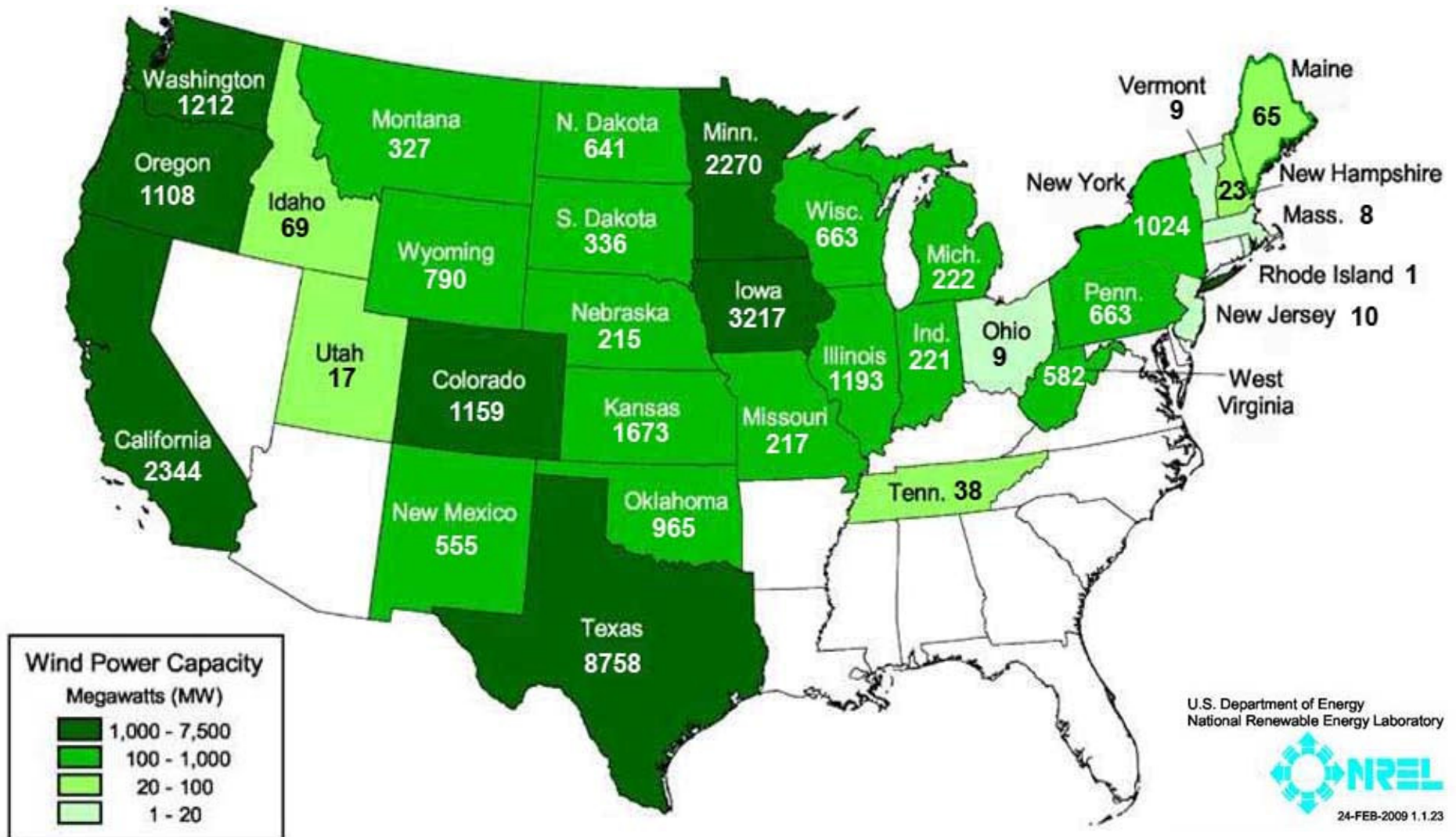
*Cumulatively, the 20% Wind Scenario would avoid the consumption of 4 trillion gallons of water through 2030.*

*The 20% Wind Scenario cuts electric sector water consumption by 17% in 2030.*





## Annual Water Savings (millions of gallons) from Currently Installed Wind Power Capacity



In areas of water scarcity, wind energy could offer the opportunity of meeting increasing energy needs without increasing demands for water resources.



# Q&A

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